HR E-Business Suite

Operations Document

Version 2.0

29/04/2013

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Document Management

Add details for everybody that contributes to this document.

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Project Control

When a project makes a change to this service, note the project details and summarise the changes that are being made.

|  |  |  |  |
| --- | --- | --- | --- |
| Date | Project code | Project name | Summary of changes |
| 24/09/12 | HRS068 | R12 Upgrade for HR and Payroll | -Upgrading database from 10.2.0.4 to 11.2.0.3-Upgrade HR software from 11.5.10.2 to 12.1.3which includes 2 different versions of Oracle Applications Server which were patched to latest versions,10.1.3.5 and 10.1.2.3 -Reorganised database and application tiers moving concurrent manager onto the app tier.-Application now LB in active/passive configuration |
| 29/04/2013 | HRS072 | Oracle HR & Payroll Annual Maintenance 12/13 | Upgraded JRE plugin to 1.7.0.17. |
| 29/04/2013 | HRS071 | HR HESA Staff Return 12/13 | Included information about HESA returns, previously omitted.Added new schema in APPS database. |

Version Control

Note all changes to this document since its initial draft.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date | Version | Author | Sections | Amendments |
| 24/09/12 | 1.0 | Gillian Henderson | All | Initial draft. |
| 29/04/2013 | 2.0 | Gordon McKenna | 1.1 | Changed JRE plugin version. |
| 29/04/2013 | 2.0 | Gordon McKenna | 1.1, 2.2.2, 3 | Added information about HESA returns. |

Some keyboard shortcuts have been added to this document: Alt-P changes to paragraph style; Alt-N changes to normal style; Alt-R changes to preformatted style; Alt-C changes to code character format, use Ctrl-Spacebar to clear; Alt-1, Alt-2 and Alt-3 create headings; Alt-B creates a bulleted list and Alt-0 (zero) creates a numbered list. You can also create appendices using the Shift-Alt-1, Shift-Alt-2 and Shift-Alt-3 shortcuts.

When you insert new tables they may appear too big because of the formatting of the default paragraph style. To fix this issue, select all rows and change to normal style (Alt-N). You can change the heading style of a table by placing the cursor anywhere inside it, selecting the Design tab and clicking one of the first three table designs.

To update the table of contents and any cross-references, hit ctrl-A to select all then F9, choose ‘update entire table’ and click OK. You might also want to select ‘update fields before printing’ under File > Options > Display > Printing Options.

# Service Description

Give a brief technical description of the service.

The Oracle E-Business Suite is used by HR and Payroll to carry out key business processing. All employees can access this application for Self Service functionality. We currently use Advanced Benefits, Human Resources, Payroll and Self Service products.

Please see the TAD for further details on infrastructure and configuration.

## Key Technologies

Identify the key technologies that the service uses.

|  |  |
| --- | --- |
| Technology | Version |
| Sun Solaris | 10 |
| Oracle RDBMS | 11.2.0.3 |
| Oracle Application Server | 10.1.2.3 |
| Oracle Application Server | 10.1.3.5 |
| Oracle E-business Suite | 12.1.3 |
| JDK (App Tier) | 1.6.0\_31 |
| JRE Plugin (app Tier) | 1.7.0\_17 |
| JRE (DB Tier) | 1.6.0\_31 |
| Oracle Application Express (APEX) | 4.1.1 |

## Support Contacts

List a technical support contact for any suppliers along with instructions on how they should be engaged.

The E-Business Suite is provided by Oracle. Support is available via support.oracle.com (you will need to request a support id) and further technical information and documentation is available from www.oracle.com.

## Glossary

Name and describe the key terms that are used to describe the service. Pay particular attention to the names of non-standard components and vendor-specific terms.

|  |  |
| --- | --- |
| Component | Description |
| Context Name | Oracle Applications context default value is <SID>\_<hostname> |
| AutoConfig | A configuration management tool for an Oracle E-Business Suite environment, AutoConfig includes a number of scripts and other files that simplify the process of making updates to a system. A key file is the *Applications context file*. |
| Applications Context File | Repository for environment-specific details used by AutoConfig to configure the application tier. |
| Database Context File | Information from this file is used to generate configuration files used on the database tier when AutoConfig is next run. |
| INST\_TOP | Instance Home (All application configuration files created by AutoConfig are stored under the Instance Home.) |
|  |  |
|  |  |

# Infrastructure

## Servers

Name all of the servers that this service runs on.

|  |  |  |  |
| --- | --- | --- | --- |
| Component | Development | Test | Live |
| Database tier | Dirleton | Girnigoe | Glamis |
| Application tier | oraappdevkb.misoraappdevat.mis | minard.misfyvie.mis | fenton.mishailes.mis |

## Components

### Oracle HR database

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Environment | Servername | Dedicated or shared | Database name | Listener port | Schema name |
| Development | Dirleton | Shared | HRDEV | 1794 | apps (main schema name but there are many others) |
| Test | Girnigoe | Shared | HRTEST | 1795 | apps (main schema name but there are many others) |
| Live | Glamis | Shared | HRLIVE | 1796 | apps (main schema name but there are many others) |

### Oracle APEX database for HESA returns

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Environment | Servername | Dedicated or shared | Database name | Listener port | Schema name |
| Development | Dirleton | Shared | APPSDEV | 1762 | Apexabs, apexhr, apextransloan |
| Test | Girnigoe | Shared | APPSTEST | 1763 | Apexabs, apexhr, apextransloan |
| Live | Glamis | Shared | APPSLIVE | 1764 | Apexabs, apexhr, apextransloan |

### Apache

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Environment | Servername | Dedicated or shared | ApacheLocation | SSL Offloaded |
| Dev | Oraappdevkb | Dedicated | $ORACLE\_HOME:/u01/software/apphr/apps/tech\_st/10.1.3Conf, log files etc in $INST\_TOP /u01/software/apphr/inst/apps/HRDEV\_oraappdevkb/ora/10.1.3) | Y  |
| Dev | Oraappdevat | Dedicated | Apache started from $IAS\_ORACLE\_HOME/u01/software/apphr/apps/tech\_st/10.1.3conf and log files in $INST\_TOP/ora/10.1.3 /u01/software/apphr/inst/apps/HRDEV\_oraappdevat/ora/10.1.3) | Y |
| Test | Minard | Dedicated | Apache started from $IAS\_ORACLE\_HOME/u03/software/apphr/apps/tech\_st/10.1.3conf and log files in $INST\_TOP/ora/10.1.3 /u03/software/apphr/inst/apps/HRTEST\_minard/ora/10.1.3) | Y  |
| Test | Fyvie | Dedicated | Apache started from $IAS\_ORACLE\_HOME/u03/software/apphr/apps/tech\_st/10.1.3conf and log files in $INST\_TOP/ora/10.1.3 /u03/software/apphr/inst/apps/HRTEST\_fyvie/ora/10.1.3) | Y |
| Live | Fenton | Dedicated | /u03/software/apphr/apps/tech\_st/10.1.3(env, conf and log files in /u03/software/apphr/inst/apps/HRLIVE\_fenton/ora/10.1.3) | Y  |
| Live | Hailes | Dedicated | /u03/software/apphr/apps/tech\_st/10.1.3(env, conf and log files in /u03/software/apphr/inst/apps/HRLIVE\_hailes/ora/10.1.3) | Y |

### ColdFusion

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Environment | Servername | Dedicated or shared | ColdFusionInstance | Datasources |
| Development |  |  |  |  |
| Test |  |  |  |  |
| Live |  |  |  |  |

## Scheduled Tasks

### Cron Jobs

See separate interface documents on [HR Services page](https://www.wiki.ed.ac.uk/display/insite/Oracle%2BHR%2BR12) on InSite.

### Oracle DBMS Jobs

This scheduled job is not part of the main HR application but this should be taken into account when there is downtime on the HR application. This is part of the e-recruitment interface which is fully documented in wiki page referenced above.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Instance | Owner | Job Name | Schedule | Description |
| HRTEST | apps | SuccessfulApplicantInterface | 3pm Mon-Fri | Interface to load successful applicants from eRecruitment to HR |
| HRLIVE | apps | SuccessfulApplicantInterface | 8pm Mon-Fri | Interface to load successful applicants from eRecruitment to HR |

## Certificates

Add any certificates that are used by the service.

|  |  |  |  |
| --- | --- | --- | --- |
| Server | Certificate CN | Signing CA | Location |
| Oraappdevkb and oraappdevat  | www-dev.epeople-fin.humanresources.ed.ac.uk | comodo | /usr/local/certs/comodo |
| Minard and Fyvie | www-test.epeople-fin.humanresources.ed.ac.uk | comodo | /usr/local/certs/comodo |
| Fenton and Hailes | www.epeople-fin.humanresources.ed.ac.uk | comodo | /usr/local/certs/comodo |

# Startup and shutdown

Create a section for each component that describes how to shut them down, start them up and determine their status. If components must be restarted in a particular order, describe that order in the space below.

The database and listener must be started before the application. The application must be shutdown before the database. The application can take a few minutes to shutdown. This can be checked by typing “ps –fu apphr | grep FND”.

There is no need to startup or shutdown the APPS database (which hosts the HESA returns system) at the same time as the HR database. HESA returns are prepared on an ad hoc basis, so will only ever be processed when HR is available. The APPS systems also host other applications with no connection to HR.

Server startup scripts are in place.

There is a shortcut in the orahr and apphr .profile which sets the relevant env file for the server. The env is set by typing hrenv at the prompt. It is not necessary to run the application on the server at Appleton Tower as the healthcheck in disabled and traffic sent to kb server when application running as standard.

When editing the Contextfiles from Oracle Applications Manager you must ensure the application is started on the AT server to allow changes to be applied.

## Dev

**SHUTDOWN**

**Shutdown application**

On oraappdevkb (as apphr):

oraappdevkb-apphr -> hrenv
oraappdevkb-apphr -> cd $ADMIN\_SCRIPTS\_HOME
Oraappdevat-apphr > ./adstpall.sh apps/<apps password>\*

On oraappdevat (as apphr):
(If processes running. Not required as standard as healthcheck disabled)

oraappdevkb-apphr -> ps –fu apphr
if processes running …

oraappdevkb-apphr -> hrenv
oraappdevkb-apphr -> cd $ADMIN\_SCRIPTS\_HOME
Oraappdevat-apphr > ./adstpall.sh apps/<apps password>\*

**Shutdown database**

On Dirleton (as orahr):

dirleton-orahr ->hrenv
dirleton-orahr-HRDEV->cd $ORACLE\_HOME/appsutil/scripts/$CONTEXT\_NAME

dirleton-orahr-HRDEV->./addbctl.sh stop immediate

dirleton-orahr-HRDEV->./addlnctl.sh stop HRDEV

**STARTUP**

**Startup database**

On Dirleton (as orahr)

dirleton-orahr ->hrenv
dirleton-orahr-HRDEV->cd $ORACLE\_HOME/appsutil/scripts/$CONTEXT\_NAME

dirleton-orahr-HRDEV->./addbctl.sh start

dirleton-orahr-HRDEV->./addlnctl.sh start HRDEV

**Startup application**

On oraappdevkb (as apphr):

oraappdevkb-apphr -> hrenv
oraappdevkb-apphr -> cd $ADMIN\_SCRIPTS\_HOME
Oraappdevat-apphr > ./adstrtal.sh apps/<apps password>

On oraappdevat (as apphr): (not required as standard as healthcheck disabled)

oraappdevat-apphr -> hrenv
oraappdevat-apphr -> cd $ADMIN\_SCRIPTS\_HOME
Oraappdevat-apphr > ./adstrtal.sh apps/<apps password>

## Test

**SHUTDOWN**

**Shutdown application**

On minard (as apphr):

minard-apphr -> hrenv
minard-apphr -> cd $ADMIN\_SCRIPTS\_HOME
minard-apphr > ./adstpall.sh apps/<apps password>

On fyvie (as apphr): (If processes running. Not required as standard as healthcheck disabled)

fyvie-apphr -> ps –fu apphr
if processes running …

fyvie-apphr -> hrenv
fyvie-apphr -> cd $ADMIN\_SCRIPTS\_HOME
fyvie-apphr > ./adstpall.sh apps/<apps password>

**Shutdown database**

On Girnigoe (as orahr):

girnigoe-orahr ->hrenv
girnigoe-orahr-HRTEST->cd $ORACLE\_HOME/appsutil/scripts/$CONTEXT\_NAME

girnigoe-orahr-HRTEST ->./addbctl.sh stop immediate

girnigoe-orahr-HRTEST ->./addlnctl.sh stop HRTEST

**STARTUP**

**Startup database**

On Girnigoe (as orahr)

girnigoe-orahr ->hrenv
girnigoe-orahr-HRTEST->cd $ORACLE\_HOME/appsutil/scripts/$CONTEXT\_NAME

girnigoe-orahr-HRTEST->./addbctl.sh start

girnigoe-orahr-HRTEST->./addlnctl.sh start HRTEST

**Startup application**

On minard (as apphr):

minard-apphr -> hrenv
minard-apphr -> cd $ADMIN\_SCRIPTS\_HOME
minard-apphr > ./adstrtal.sh apps/<apps password>

On fyvie (as apphr): (not required as standard as healthcheck disabled)

fyvie-apphr -> hrenv
fyvie-apphr -> cd $ADMIN\_SCRIPTS\_HOME
fyvie-apphr > ./adstrtal.sh apps/<apps password>

## Live

**SHUTDOWN**

**Shutdown application**

On fenton(as apphr):

fenton-apphr -> hrenv
fenton-apphr -> cd $ADMIN\_SCRIPTS\_HOME
fenton-apphr > ./adstpall.sh apps/<apps password>

On Hailes (as apphr): (If processes running. Not required as standard as healthcheck disabled)

hailes-apphr -> ps –fu apphr
if processes running …

hailes-apphr -> hrenv
hailes-apphr -> cd $ADMIN\_SCRIPTS\_HOME
hailes-apphr > ./adstpall.sh apps/<apps password>

**Shutdown database**

On Glamis (as orahr):

glamis-orahr ->hrenv
glamis-orahr-HRLIVE->cd $ORACLE\_HOME/appsutil/scripts/$CONTEXT\_NAME

glamis-orahr-HRLIVE ->./addbctl.sh stop immediate

glamis-orahr-HRLIVE ->./addlnctl.sh stop HRLIVE

**STARTUP**

**Startup database**

On Glamis (as orahr)

glamis-orahr ->hrenv
glamis-orahr-HRLIVE->cd $ORACLE\_HOME/appsutil/scripts/$CONTEXT\_NAME

glamis-orahr-HRLIVE->./addbctl.sh start

glamis-orahr-HRLIVE->

**Startup application**

On Fenton (as apphr):

fenton-apphr -> hrenv
fenton-apphr -> cd $ADMIN\_SCRIPTS\_HOME
fenton-apphr > ./adstrtal.sh apps/<apps password>

On Hailes(as apphr): (not required as standard as healthcheck disabled)

hailes-apphr -> hrenv
hailes-apphr -> cd $ADMIN\_SCRIPTS\_HOME
hailes-apphr > ./adstrtal.sh apps/<apps password>

# Configuration

Describe any non-standard configuration details below, including the location and purpose of configuration files and log files.

## Environment Files

There is a shortcut on all servers which will set up the main environment file to be run on that server. This can be run by typing “hrenv” from apphr account on the app servers and the orahr and apphr account on the db servers. Once this has been set the

## Configuration Files

Config information is centralized in a file called a Contextfile. The changes in this file are applied by running AutoConfig.

### Pfile

HR is not currently using an spfile as this is not fully supported with Autoconfig environment for Ebusiness suite databases.

The location of the pfile is the standard $ORACLE\_HOME/dbs/init$ORACLE\_SID.ora

e.g. for live

/u32/software/orahr/db/tech\_st/11.2.0.3/dbs/initHRLIVE.ora

### ContextFiles

### Editing Contextfiles

* Make sure Application is started up on the AT server (details in section 3)
* Log into application (using standard URL from TAD) as yourself (after requesting sysadmin permission from Apps Management). It is also possible to login as sysadmin (password in infokeep under Apps->HR) however this is not recommended, as best practice, due high level of access this account has.
* Navigate using menu on left hand of screen
 Main Menu->System Administrator->Oracle applications Manager->Dashboard
* Then choose Site Map from top left of screen.
* In System Configuration tab choose AutoConfig. Then choose the appropriate Config file.
* Save file and press OK to confirm and you will receive confirmation that changes have been saved.

See screenshots

### Location of Contextfiles

**Dev**

|  |  |
| --- | --- |
| ContextFile | Description |
| /u01/software/apphr/inst/apps/HRDEV\_oraappdevat/appl/admin/HRDEV\_oraappdevkb.xml | Contextfile on oraappdevkb |
| /u01/software/apphr/inst/apps/HRDEV\_oraappdevat/appl/admin/HRDEV\_oraappdevat.xml | Contextfile on oraappdevat |
| /u02/software/orahr/db/tech\_st/11.2.0.3/appsutil/HRDEV\_dirleton.xml | Contextfile on dirleton |

**Test**

|  |  |
| --- | --- |
| ContextFile | Description |
| /u03/software/apphr/inst/apps/HRTEST\_minard/appl/admin/HRTEST\_minard.xml | Contextfile on minard |
| /u03/software/apphr/inst/apps/HRTEST\_fyvie/appl/admin/HRTEST\_fyvie.xml | Contextfile on fyvie |
| /u32/software/orahr/db/tech\_st/11.2.0.3/appsutil/HRTEST\_girnigoe.xml | Contextfile on oraappdevkb |

**Live**

|  |  |
| --- | --- |
| ContextFile | Description |
| /u03/software/apphr/inst/apps/HRLIVE\_fenton/appl/admin/HRLIVE\_fenton.xml | Contextfile on fenton |
| /u03/software/apphr/inst/apps/HRLIVE\_fenton/appl/admin/HRLIVE\_hailes.xml | Contextfile on hailes |
| /u32/software/orahr/db/tech\_st/11.2.0.3/appsutil/HRLIVE\_glamis.xml | Contextfile on glamis |

### Running AutoConfig to Apply Changes in Contextfiles

Once set environment you can echo $CONTEXT\_FILE env variable to verify location of contextfiles.

The main AutoConfig Script is adautocfg.sh. adautocfg.sh is a wrapper script that passes the name of the specific environment context file to adconfig.sh.

adautocfg.sh is located in $INST\_TOP/admin/scripts on the application tier and $ORACLE\_HOME/appsutil/scripts/$CONTEXT\_NAME on the database tier.
(where $ORACLE\_HOME is RDBMS ORACLE\_HOME)

**Running autoconfig on the db tier to populate changes from Contextfile**

Login as orahr on KB database server:
#hrenv
#cd $ORACLE\_HOME/appsutil/scripts/< CONTEXT\_NAME >
#./adautocfg.sh

(After running AutoConfig on db tier you will need to change the permission of sqlplus executable and copy tnsnames.ora back in place on database server

chmod 775 $ORACLE\_HOME/bin/sqlplus
cp $ORACLE\_HOME/network/admin/<Context Name>/tnsnames.ora.MISKEEP $ORACLE\_HOME/network/admin/<Context Name>/tnsnames.ora

**Running autoconfig on the app tier to populate changes from Contextfile**

Login as apphr on KB and AT application servers:
#hrenv
#cd $INST\_TOP/admin/scripts
#./adautocfg.sh

## Log Files

**Alert logs and trace files**

Alert logs held in following location:

$ORACLE\_HOME/admin/<CONTEXT\_NAME>/diag/rdbms/$oracle\_sid/$ORACLE\_SID/trace

e.g. for live /u32/software/orahr/db/tech\_st/11.2.0.3/admin/HRLIVE\_glamis/diag/rdbms/hrlive/HRLIVE/trace

Following Diagram taken from Oracle E-Business Suited Concepts Document



# Patching

**Location of Patches**

Patches will be stored in $HOME/PATCHES directory on each server

*The patches will be cleared out by App support after the live patches have been applied and signed off.- TBC*

**Set up environment**

hrenv

**Stop application (on both app servers if running)**

cd $ADMIN\_SCRIPTS\_HOME
./adstpall.sh

Enter the APPS username: apps
Enter the APPS password:

**Check all processes stopped**

ps –fu apphr

**Put database in maintenance mode for patching (only run on one app server).**

adadmin

Filename [adadmin.log] :
Do you wish to activate this feature [No] ?
Please enter the batchsize [1000] :

using ORACLE executables in '/u01/software/apphr/apps/tech\_st/10.1.2'.
Is this the correct database [Yes] ?

Enter the password for your 'SYSTEM' ORACLE schema: <system password>

Enter the ORACLE password of Application Object Library [APPS] : <apps password>

 AD Administration Main Menu
--------------------------------------------------
 5. Change Maintenance Mode
Enter your choice [6] : 5

Please select an option:

1. Enable Maintenance Mode
Enter your choice [3] : 1

Successfully enabled Maintenance Mode.

1. Return to Main Menu

6. Exit AD Administration

**Change to Directory where patch downloaded, unzip patch then change into patch dir**

e.g

cd $HOME/PATCH
unzip p12316083\_R12.FND.B\_R12\_GENERIC.zip
cd 12316083

**Now apply patch using adpatch utility (change name of logfile to reflect patch no)**

Before start do a file listing and take a note of the patch driver (*(usually u<patchno>.drv)*

adpatch

Your default directory is '/u01/software/apphr/apps/apps\_st/appl'.

Is this the correct APPL\_TOP [Yes] ?

Filename [adpatch.log] : ***u12316083.log***

You can be notified by email if a failure occurs.

Do you wish to activate this feature [No] ?

Please enter the batchsize [1000] :

using ORACLE executables in '/u01/software/apphr/apps/tech\_st/10.1.2'.

Is this the correct database [Yes] ?

Enter the password for your 'SYSTEM' ORACLE schema: ***<system password>***

Enter the ORACLE password of Application Object Library [APPS] : ***<apps password>***

The default directory is [/u01/software/apphr/PATCHES/APEX/12316083] :

Please enter the name of your AutoPatch driver file : ***u12316083.drv***

You should check the file

/u01/software/apphr/apps/apps\_st/appl/admin/HRDEV/log/u12316083.log

for errors.

**Repeat above process on second application server**

**Disable maintenance mode**

**adadmin**

1. Disable Maintenance Mode

Successfully disabled Maintenance Mode.

**Restart application on KB server**

oraappdevkb-apphr > cd $ADMIN\_SCRIPTS\_HOME

oraappdevkb-apphr > ./adstrtal.sh

If Autoconfig had been run apply any post AutoConfig steps. Which will be documented in autoconfig section of Operational document.

# Common Support Tasks

## Cloning

Will link in contents from K:\ISAPPS\dsg\Projects\HRS072\HRDEVCLONE\ HRCloneProcedure.docx once complete

**Useful Oracle support Docs**

Database Initialization Parameters for Oracle E-Business Suite Release 12 - Note 396009.1

Cloning Oracle Applications Release 12 with Rapid Clone document 406982.1 on OracleMetaLink

Using AutoConfig to Manage System Configurations in Oracle E-Business Suite Release 12 [ID 387859.1]

# Resilience

A resilient service will withstand loss of single server components and continue to operate normally. Describe the steps that should be taken to allow the service to continue following server failure interruption. Additionally describe the steps taken to re-introduce a failed server once recovered

The application is not currently resilient. The application is configured on KB/AT app servers and accessed via the LB. The application is currently in an active/inactive configuration (healthcheck disabled at AT) as concurrent manager outputs files to the app server.

Although application not resilient if the AT application server was lost or required to be shutdown it would be possible to switch over to the AT application server with minimum interruption to service.

**Steps to switch to AT server:**

**Start up application on AT server (as apphr)**
hrenv
cd $ADMIN\_SCRIPTS\_HOME
./adstrtal.sh

**Enable Health check on AT server**
hrenv
cd $INST\_TOP/portal/healthcheck
mv index\_disabled.html index.html

**Disable Healthcheck on KB server (as apphr) (if possible)**hrenv
cd $INST\_TOP/portal/healthcheck
mv index.html index\_disabled.html

**Shutdown application on KB server (as apphr) (if possible)**
hrenv
cd $ADMIN\_SCRIPTS\_HOME
./adstpall.sh

**Startup concurrent manager on AT server (as apphr)**
hrenv
cd $ADMIN\_SCRIPTS\_HOME
./adcmctl.sh start

# Disaster Recovery

## Summary

**Live DB**: Glamis
**Live APP servers**: Fenton(ACTIVE)/Hailes(PASSIVE)
**DR DB Server:** Edzell
**DR APP Server**: Hailes

Ref:Cloning Oracle Applications Release 12 with Rapid Clone document 406982.1 on OracleMetaLink

https://support.oracle.com/epmos/faces/ui/km/SearchDocDisplay.jspx?\_afrLoop=1021267683405546&recommended=true&type=DOCUMENT&id=406982.1&\_afrWindowMode=0&\_adf.ctrl-state=19gg54larm\_1149

In order to provide a disaster recovery for the HR environment it is necessary to make use of Oracles rapid clone utility. At the moment the HR application only actively utilises one site only however application component on the second site is patched to the same level and will be available in the event of a DR.

The Oracle database is copied weekly to Edzell using the standard HA scripts. Once the database is recovered on Edzell the application on the AT app server will need to be repointed to the database on Edzell.

In addition to these steps it is necessary to keep the database in a state of readiness for cloning, to achieve this we will run Rapid Clones pre clone script daily on the source database tier.

## Setup

### Database

As with all other production Oracle Databases the database is put into hot backup mode once a week then copied over to the DR database server, in addition the archive logs are copied over 3 times a day. This is done using the HA scripts, the only deviation from the norm is that the database owner is orahr.

The database software will be copied over to Edzell on a weekly basis or whenever patches are applied. The database preclone steps must be run before the db and db software copy. e.g perl adpreclone.pl dbTier. This step is called within the main database copy script

05 10 \* \* 6 /u32/software/orahr/dba/HA/weekly\_db\_scp\_u52.sh HRLIVE > /u32/software/orahr/dba/HA/HRLIVE/dbcopycron.log 2>&1

### Application

Rapid Clone pre clone scripts are not be required as the application already exists on the AT server . It should be decided if users want to copy over output and logs from concurrent manager as these are not currently available on the AT server as the concurrent manager is not running and the application is not ACTIVE at AT.

Activate DB/APP on DR servers

## Recovery Steps

### Database

As the database is copied in the normal manner to the DR server, we will make use of the HA copy on Edzell.

https://www.wiki.ed.ac.uk/display/INF058/Database+Recovery

Recreate the database using the file generated by the HA scripts, recover to a point in time using the archived redo logs. We can then open using reset logs and add the temp files.

1. **Check that the following files are available on the remoter server (where $ORACLE\_HOME is /u32/software/orahr/db/tech\_st/11.2.0.3)**
* database datafiles (/u52/ha/oradata/HRLIVE)
* tempfiles (/d11/ha/oradata/HRLIVE)
* archive log files (/u52/ha/oradata/archive/HRLIVE)
* database parameter file ($ORACLE\_HOME/dbs/initHRLIVE.ora)
* database contextfile ($ORACLE\_HOME /appsutil/HRLIVE\_glamis.xml
* password file ($ORACLE\_HOME /dbs/orapwHRLIVE)
* listener.ora ($ORACLE\_HOME/network/admin/HRLIVE\_glamis)
* tnsnames.ora ($ORACLE\_HOME/network/admin/HRLIVE\_glamis)
* the file created nightly from backup controlfile to trace command . This file must be the one generated immediately before the backup being used for the restore. ($ORACLE\_HOME/admin/hotclone.sql)
1. **Take backup copies of following files before start DR and save in /u32/software/orahr/drscripts/backup**
* database parameter file ($ORACLE\_HOME/dbs/initHRLIVE.ora)
* database contextfile ($ORACLE\_HOME /appsutil/HRLIVE\_glamis.xml
* password file ($ORACLE\_HOME /dbs/orapwHRLIVE)
* listener.ora ($ORACLE\_HOME/network/admin/HRLIVE\_glamis)
* tnsnames.ora ($ORACLE\_HOME/network/admin/HRLIVE\_glamis)
* the file created nightly from backup controlfile to trace command . ($ORACLE\_HOME/admin/hotclone.sql)
1. **Check that the oratab can be written to by orahr (if not temporarily change the permissions to 666)**

oracle@edzell: ls -ld /var/opt/oracle/oratab

-rw-rw-r-- 1 oracle dba 2785 Sep 20 10:19 /var/opt/oracle/oratab

1. **Create new inventory location on Edzell and update oraInst.loc to point to this directory**

inventory\_loc=/u32/software/orahr/oraInventory

inst\_group=dba

(create /u32/software/orahr/oraInventory directory if this does not exist)

1. **Take a note of all directories where datafiles, tempfiles, redo logs, controlfiles and archive logs are and copy to correct location for restore**

Copy datafiles and tempfiles to correct directory.
(e.g from /u52/oradata/ha to /u52/oradata

Copy archive logs to correct directory, unzip and take a note of the latest archive log.
(from /u52/oradata/ha/archive to oradata/archive)

1. **Prepare contextfile (edit port no’s and DATA\_TOP’s if required)**

Edit contextfile copied from Glamis to Edzell as part of HA copy.
(We have backup copy in /u32/software/orahr/drscripts/backup)

* Rename Contextfile file – (mv HRLIVE\_glamis.xml HRLIVE\_edzell.xml)
* Edit with new server name - global replace for Glamis with Edzell as database and ports will remain the same
* change DATA\_TOPS if datafile sets in different locations from Glamis. This should not be required.
(e.g.Change
<db\_sysfiles oa\_var="s\_dbhome1">/u52/oradata/HRLIVE</db\_sysfiles>
<db\_logfiles oa\_var="s\_dbhome2">/d03/oradata/HRLIVE</db\_logfiles>
<db\_datfiles oa\_var="s\_dbhome3">/u52/oradata/HRLIVE</db\_datfiles>
<db\_ndxfiles oa\_var="s\_dbhome4">/u52/oradata/HRLIVE</db\_ndxfiles> )
* make sure contextfile values have correct values for PERL5LIB, PATH
e.g.
<PERL5LIB oa\_var="s\_perl5lib" osd="unix">/u32/software/orahr/db/tech\_st/11.2.0.3/perl/lib/5.10.0:/u32/software/orahr/db/tech\_st/11.2.0.3/perl/lib/site\_perl/5.10.0:/u32/software/orahr/db/tech\_st/11.2.0.3/appsutil/perl</PERL5LIB>

<PATH oa\_var="s\_db\_path" osd="Solaris">/usr/bin:/bin:/usr/local/bin:.:/usr/openwin/bin:/usr/ccs/bin:/usr/ucb:/u32/software/orahr/db/tech\_st/11.2.0.3/bin</PATH>

1. **Configure the RDBMS ORACLE\_HOME**

(supply full path for $ORACLE\_HOME=/u32/software/orahr/db/tech\_st/11.2.0.3)

cd <RDBMS ORACLE\_HOME>/appsutil/clone/bin

perl adcfgclone.pl dbTechStack $ORACLE\_HOME/appsutil/HRLIVE\_edzell.xml

Take a note of the logfile. (The above script will also start up the database listener)

1. **Edit init.ora copied from glamis with values for Edzell (most values should be the same apart from utl\_file).**

edit $ORACLE\_HOME/dbs/initHRLIVE.ora

Edit control file locations (if applicable)
global replace glamis to edzell which will update diagnostic\_dest, utl\_file
global change fenton to edzell to update utl\_file

Make a backup copy of this file with the changes to $HOME/drscripts/initHRLIVE.ora (as this may be overwritten by AutoConfig)

1. **Remove control files and redo logs from Edzell if they have been copied across**
2. **Edit the file created nightly from backup controlfile to trace command (this file must be the one generated immediately before the backup being used for the restore) .**

cp /u32/software/orahr/db/tech\_st/11.2.0.3/admin/hotclone.sql to clone.sql
Edit locations of redo logs and datafiles.

remove all text before startup nomount

remove all text after

CHARACTER SET WE8ISO8859PI;

change the line CREATE CONTROLFILE to read CREATE CONTROLFILE SET DATABASE "DBNAME" RESETLOGS ARCHIVELOG

1. **Edit Temp file creation script**

cp /u32/software/orahr/db/tech\_st/11.2.0.3/admin/create\_temp\_file.sql /u32/software/orahr/db/tech\_st/11.2.0.3/admin/temp.sql

Edit /u32/software/orahr/db/tech\_st/11.2.0.3/admin/temp.sql

Change locations of tempfiles

1. **run database env**

Edzell-orahr > cd /u32/software/orahr/db/tech\_st/11.2.0.3

Edzell-orahr > . HRTEST\_edzell.env

1. **recover database**
sqlplus "/ as sysdba"

SQL> startup nomount

SQL> @/u32/software/orahr/db/tech\_st/11.2.0.3/admin/clone.sql

Control file created.

recover database until cancel using backup controlfile;

AUTO
SQL> alter database open resetlogs;

Database altered.

***(take a note of last archive log applied)***

1. **create temp files**

sqlplus "/ as sysdba"

SQL>@/u32/software/orahr/db/tech\_st/11.2.0.3/admin/temp.sql

1. **run the library update**

Edzell-orahr > cd /u32/software/orahr/db/tech\_st/11.2.0.3/appsutil/install/HRLIVE\_edzell/

Edzell-orahr > sqlplus "/ as sysdba" @adupdlib.sql so

1. **create passwordfile**

Should be no need to create if password file copied over successfully
Check file in $ORACLE\_HOME/dbs/orapwHRLIVE

1. **Configure the database**

cd $ORACLE\_HOME/appsutil/clone/bin/
perl adcfgclone.pl dbconfig <contextfile>

(Edzell-orahr > cd /u32/software/orahr/db/tech\_st/11.2.0.3/appsutil/clone/bin/

Edzell-orahr > perl adcfgclone.pl dbconfig /u32/software/orahr/db/tech\_st/11.2.0.3/appsutil/HRLIVE\_edzell.xml)

*Take a note of the logfile produced*

1. **Copy edited init.ora back in place**

Edzell-orahr > cp $HOME/drscripts/initHRLIVE.ora /u32/software/orahr/db/tech\_st/11.2.0.3/dbs/initHRLIVE.ora

1. **Run following to prevent concurrent managers scheduled on live being set off automatically when application started**

SQL> update fnd\_concurrent\_requests
set hold\_flag = 'Y'
where status\_code='I'
and phase\_code = 'P'
and hold\_flag = 'N'
/

### Reconfigure application to point to new database

1. **Identify the application tier context file on the AT server (Hailes)**
Hailes-apphr > hrenv
Hailes-apphr > echo $CONTEXT\_FILE
/u03/software/apphr/inst/apps/HRLIVE\_hailes/appl/admin/HRLIVE\_hailes.xml
2. **Take a backup copies of the files**

Hailes-apphr > cd /u03/software/apphr/inst/apps/HRLIVE\_hailes/appl/admin
Hailes-apphr > cp HRLIVE\_hailes.xml HRLIVE\_hailes.xml\_beforeDR
Hailes-apphr > cp HRLIVE\_hailes.xml $HOME/HRLIVE\_hailes.xml\_beforeDR

1. **Update the following variables in the Applications context file to match the target database configuration:**

**s\_dbhost** New database hostname change from glamis to edzell

**s\_dbdomain** – no change should be required as domain should be the same

**s\_dbport** –no change should be required -check showing live port 1796
(e.g. already set 1796
 <dbport oa\_var="s\_dbport" oa\_type="EXT\_PORT" base="1521" step="1" range="-1" label="Database Port">1796</dbport>)

**s\_apps\_jdbc\_connect\_descriptor** –change server name in string as below
Change from

<jdbc\_url oa\_var="s\_apps\_jdbc\_connect\_descriptor">jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS\_LIST=(LOAD\_BALANCE=YES)(FAILOVER=YES)(ADDRESS=(PROTOCOL=tcp)(HOST=glamis.mis.ed.ac.uk)(PORT=1796)))(CONNECT\_DATA=(SID=HRLIVE)))</jdbc\_url>

To

<jdbc\_url oa\_var="s\_apps\_jdbc\_connect\_descriptor">jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS\_LIST=(LOAD\_BALANCE=YES)(FAILOVER=YES)(ADDRESS=(PROTOCOL=tcp)(HOST=edzell.mis.ed.ac.uk)(PORT=1796)))(CONNECT\_DATA=(SID=HRLIVE)))</jdbc\_url>

**s\_isDB NO** – should be no change

1. **Run AutoConfig on the application tier**

Make sure that the new database and listener are running on Edzell

(Edzell-orahr > pwd
/u32/software/orahr/db/tech\_st/11.2.0.3/appsutil/scripts/HRLIVE\_glamis
Edzell-orahr > ./addlnctl.sh HRLIVE
Edzell-orahr > ./addbctl.sh start)

and run AutoConfig on the application tier on AT:

Hailes-apphr >cd $ADMIN\_SCRIPTS\_HOME
Hailes-apphr >pwd
/u03/software/apphr/inst/apps/HRLIVE\_hailes/admin/scripts
Hailes-apphr > ./adautocfg.sh

1. **Start all application tier services**

Restart all services on the application tier.
Edzell-orahr > hrenv
Edzell-orahr > $ADMIN\_SCRIPTS\_HOME
$ adstrtal.sh apps/[APPSpwd]

1. **Make sure default.env contains following lines**

$INST\_TOP/ora/10.1.2/forms/server/default.env

# Begin Customization

UOE\_TOP=/u03/software/apphr/apps/apps\_st/appl/uoe/1.0

EAS\_TOP=/u03/software/apphr/apps/apps\_st/appl/eas/1.0

# End Customization

1. **Enable healthcheck on AT server**

Hailes-apphr > cd $INST\_TOP/portal/healthcheck

Hailes-apphr > ls -l

-rw-r--r-- 1 apphr apphr 16 Aug 31 11:29 disabled\_index.html

Hailes-apphr > mv disabled\_index.html index.html

-rw-r--r-- 1 apphr apphr 16 Aug 31 11:29 disabled\_index.html

Hailes-apphr > mv disabled\_index.html index.html

1. **Enable start up scripts on AT servers (and disable startup script on kb servers when possible)**

**On Db server**

/etc/rc2.d/S99r12hrdb pointing to /etc/init.d/r12hrdb
/etc/rc0.d/K01r12hrdb pointing to /etc/init.d/r12hrdb

**On App server**

/etc/rc2.d/S99r12apphr /etc/init.d/r12apphr

## Steps to repoint to KB server

We would need to

* clone database to KB server
* Edit Hailes contextfile to point to newly cloned HRLIVE database on Glamis
* Rename healthcheck files on AT and KB to make KB active
* Delete database on Edzell
* Reinstate DR copy scripts from Glamis to Edzell

## DR Log

DR Test of test environment– Carried out Nov 12.

Outcome. Could connect to application on recovered HRTEST database on Edzell and accessed this from AT server. During switchback to test KB app server and actual test DB on Girnigoe some of the concurrent manager components were not started. However it is not known if we would encounter this issue in Live as we were switching back to a different database in test which we would not be doing in live we would fail back using standard cloning steps.

The 2 components which did not start were Output post processor and Workflow Agent Listener service. Unfortunately this could not be investigated further as the refresh of the test environment removed this issue.



# Document Signoff

|  |  |  |
| --- | --- | --- |
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